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ABSTRACT

The aim of this document is to give teachers in Tasmania an understanding of the importance and usefulness of the environment as a learning resource both as an immediate stimulus for learning and for the long term process of forming sound community values. The document provides schools with a basis for the development of environmental resources and gives direction to teachers for using a wide range of first hand experiences in their local environments and beyond. School buildings, grounds, the community, the region and the world become extensions of the classroom when the environment is incorporated into the learning program. Provided is an Idea Bank which includes the following sections: (1) "Using the Schoolgrounds"; (2) "Some Teaching Strategies and Starting Points"; (3) "Organizing With Trails"; (4) "A Checklist for Going Out"; (5) "Sample School Policy"; (6) "Environmental Code"; (7) "Dressed to Survive"; (8) "Establishing an Information File"; (9) "Residential Experience"; and (10) "References". The reference material is listed under headings of books with practical ideas and activities, books for getting organized in the environment, useful reference books for flora, and useful reference books for fauna. (KR)

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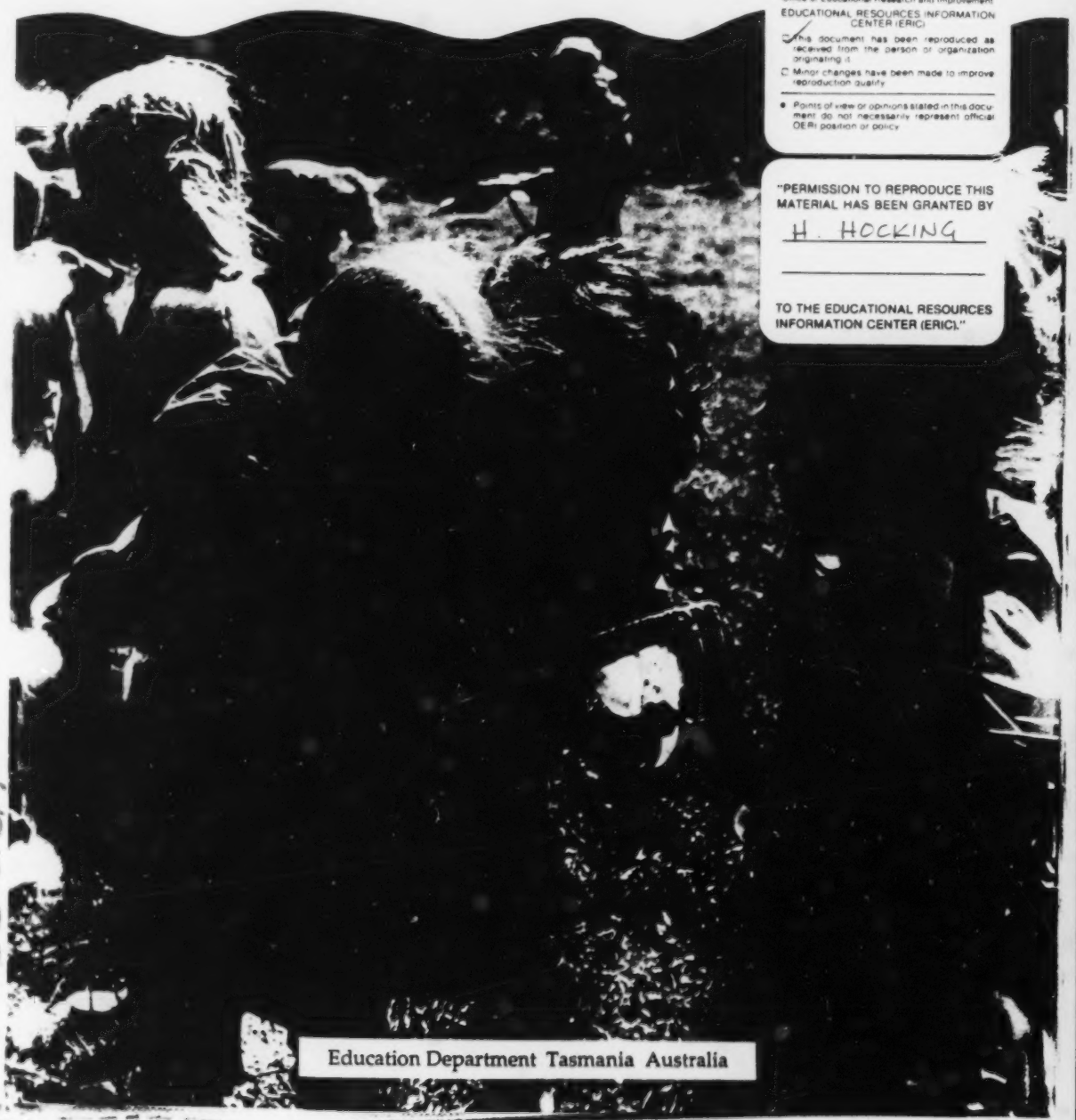

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ENVIRONMENT

A learning resource

Prepared for the Education Department Tasmania by the Committee on Primary Education

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Foreword

The aim of this document is to give teachers an understanding of the importance and usefulness of the environment as a learning resource both as an immediate stimulus for learning and for the long term process of forming sound community values. The document provides schools with a basis for the development of environmental resources and gives direction to teachers for using a wide range of first hand experiences in their local environments and beyond.

The COPE Working Party wishes to thank the many contributors in schools and on writing parties for their assistance in developing and producing this practical and timely document. Particular recognition is made of the work of Nel Smit and the value of her insights gained as a consultant at Molesworth Environment Centre and whilst studying environmental education overseas.

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Introduction

Use of the environment is fundamental if children are to appreciate, understand and successfully participate in the world we share. There is an increasing need in our society to understand the nature of the environment, to make wise decisions about our available resources and to balance these decisions with the requirements of our present and future generations. Children can be involved in a variety of experiences that aim to develop environmentally aware citizens equipped with knowledge, skills and attitudes for life in a world full of uncertainties.

The environment in which we live consists of everything that surrounds us and that affects our lives.

In the context of education, 'the environment' offers:

- a location for learning
- a focus for increasing knowledge and skills and
- a vehicle for the development of attitudes

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A location for learning

Stimulating places outside the classroom may be used to enrich investigations into language, art, mathematics, music, science and social science. In this context, children might estimate and measure distances around the school, read a story under the shade of a tree or explore fantasy worlds in cracks and crevices.

A focus for developing knowledge and skills

Through learning about the environment, children investigate a place, develop enquiry skills and acquire information. For example, they might record weather patterns, conduct experiments on evaporation or visit a factory.

A way of developing attitudes

Education in and about the environment should lead to a concern for the quality of the environment. In educating for the environment, a sense of responsibility is developed and children are encouraged to have a regard for their place in the world. Participation in such activities as being responsible for plants and animals, anti-litter campaigns, energy saving programs, will help to develop lasting attitudes.

When the environment is incorporated into the learning program, in what we will call *environmental education*, children have opportunities for active learning through direct experience. *Environmental education* provides a purposeful focus for children to think, communicate and value.

When using the environment we offer:

- interesting learning places;
- a variety of experiences involving the senses;
- active learning with real objects and events;
- stimuli for curiosity, for children to discover and make connections with what they already know;
- motives for considering important issues and ideas; and
- a real purpose for thinking and using language — reasons to care and show responsibility.

When children use naturally occurring phenomena that enhance the learning program, uncontrived opportunities are created to:

investigate	predict
explore	record
imagine	inform
speculate	clarify
reflect	justify
create	experiment
co-operate	decide

The possibilities for physical development and social interaction through play, sport, games and fitness activities have long been recognised. Less obvious is the fact that environmental experiences offer a stimulus for seeking knowledge. The environment provides a powerful motivation for a variety of intellectual skills and attitudes of care and responsibility to be developed and practised.

The special place of the environment as a resource for learning can be summed up in this way:

Children and their teachers should be involved with a diversity of first hand experiences out in the environment that develop an awareness and understanding about the world.

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A starting point

The young child's thinking is directed outwards onto the events of the world
(COPE 1980)

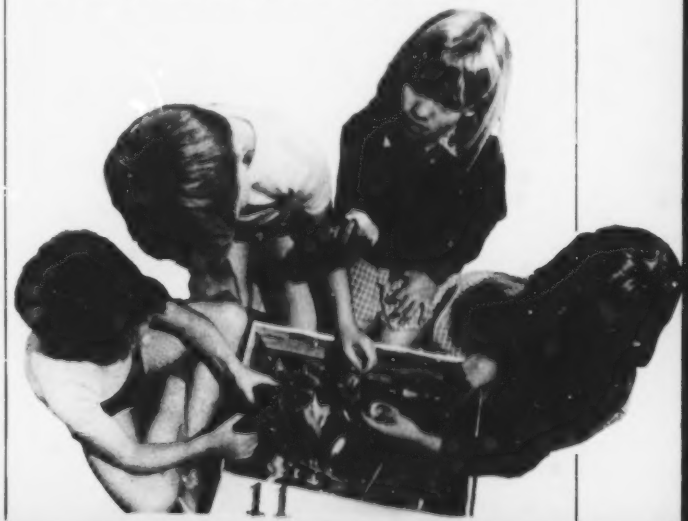
Through interaction with this world, children learn and grow.

The first learning environment for children is the home. It provides a secure base where children feel a sense of belonging, where their attempts to make sense of their world are valued and where active exploration is encouraged.

The formalised structure of the school provides an extension from the home, a wider world in which to live and learn.

The task for the school is to assist the child's growth and development, to balance the familiar with the unfamiliar. To do this, the teacher needs to make links with what the child has already come to know, while casting the familiar in a new light—stretching the child's mind to challenge what is taken for granted.

The teacher therefore uses all the resources available inside and outside the classroom to enlarge the child's changing cognitive map of the world.



The step beyond the door

School buildings, grounds, the community, the region and the world become extensions of the classroom when the environment is incorporated into the learning program.

The school ground itself is the first and most obvious place to be used to investigate the environment. (Ideas Bank— *Using the school grounds*)

It is a resource which should:

- complement classroom activities
- challenge and encourage initiative
- offer a diversity of sites that provide a range of experiences
- encourage student involvement in decision-making
- encourage caring attitudes

There are a multitude of experiences immediately available for which no complex excursion is necessary.

The school building and its surroundings reflect the activities of the wider world—the water tap, the gutter, the telephone and power lines, the bus stop all can be starting points for exploration.

Before and during this investigation of the immediate environment, teacher and children begin to seek answers to thought-provoking questions such as:

Where did it come from?

What caused that to happen?

How does it feel?

What will happen over time?

Will it matter?

I wonder why?

Children are not empty vessels into which streams of knowledge are poured; they set in motion their own learning in response to environmental stimuli. (COPE 1980)

The process of learning in and about the environment then, is not one of the transfer of knowledge from adult to child. Learning grows from careful observation during which teachers and children frame important questions, share existing knowledge and pursue methods of investigations.

Experiences built around one tree, for example might include:

Investigating:

- whether branches spread evenly out from the trunk in all directions.
- miniature or imaginary worlds that may exist under bark, in crevices or holes.

Imagining:

- where holes in the trunk may lead to.
- what it might have been like in the world when the tree was young.

Speculating what if:

- all the trees in your school grounds or neighbourhood were cut down.
- a tree could talk or grew purple leaves next spring.

Problem solving:

- how to calculate the total mass of tree litter under a tree?
- how to calculate the height of the tree?

Alternatively, an everyday urban situation might provide the focus for learning. In a walk along a city street for example, young children could:

- practise road safety drills;
- observe street and traffic signs;
- note colours, smells and sounds;
- identify services such as power and telephone installations; and
- inquire about what is underground.

Older children using the same stimulus could:

- inquire about the community provisions for the aged, the handicapped, the young
- investigate the history of the area
- measure noise pollution levels
- discuss street beautification
- formulate solutions to problems such as weeds and litter
- use skills of comparison, surveying, sampling (Ideas Bank— *Sample further activities).*

From these simple starting points it is clear that children are engaged in practising skills of fundamental educational importance such as:

- working in groups
- working creatively
- acquiring and conveying information
- evaluating evidence and making judgments and decisions
- generating hypotheses and questions.

The children do not always need to 'go out' to use the environment as a learning resource. In some cases, objects and animals can be brought into the classroom.

In other instances, it may be more appropriate for plants, rocks and animals to be viewed in their natural habitat. Respect for the environment and its creatures determines the most suitable location for the study (Ideas Bank— *Starting Points*).

Beyond the gate

At times it is necessary to move beyond the school to provide experiences not available in the immediate environment.

These excursions may include the near neighbourhood, day visits to enrich a topic of class interest, or residential experiences of longer duration.

Day visits will generally focus on an area with a special environment, that may be natural or man-made, rural, urban or coastal. Extended local walks, parks and gardens, the museum and field study centres, all may be usefully experienced within one day. (Ideas Bank— *Organising Trails*)

Less frequently, extending the children's experience requires a stay of longer duration. Residential experiences are of particular value in promoting social integration. Being in a close community for an extended period of time, encourages the interaction in work and play of children from different friendship and cultural groups.

Community living also enables children to resolve conflict situations more independently as they arise.

The simple fact of being away from home helps to foster independence and to develop a sense of responsibility—for one's possessions, for the rights of others and for the environment itself.

Time is a valuable asset in a residential experience—time to contemplate a problem, to follow-through an investigation, to work together on alternative solutions. Close relationships develop between child and adult; each see the other in a new light.

In the physically challenging context of adventure activities, children can discover their own limits, uncover hidden capacities, learn new skills and come to trust the knowledge and resourcefulness of others.

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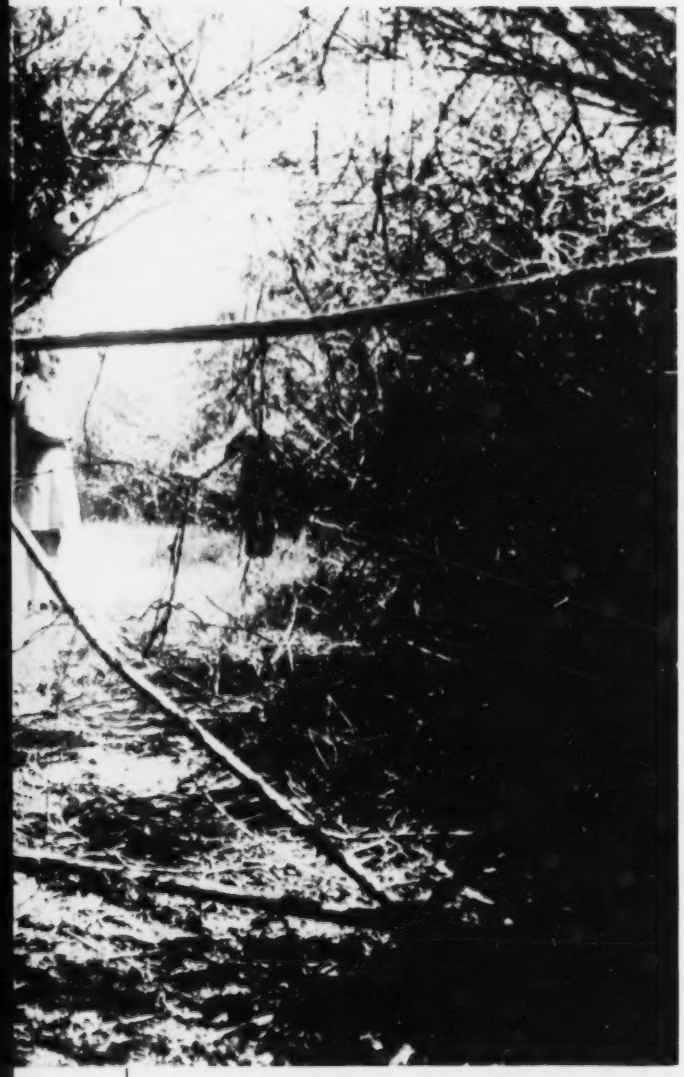

Different settings, whether visited for a day or for longer, offer their own opportunities for learning. A farm, a beach, a city, the bush, each has its own rhythm of operations; each gives a different glimpse of the complex relationship between people, machines and animals.

All of these settings provide extension to the children's existing experience and contrast to the environment they know.

Children can come to 'feel' this new world, to absorb its various moods and to view the familiar from a new vantage point—to hear the sounds of night, to see the world at dawn, to remember the shape and texture of a sea shell.

It is important that schools foster close relationships with their communities in order to establish an understanding supportive climate.
(COPE 1980)

People too are part of the environment.

The community is rich in learning possibilities, not only for the venues it provides but also because of the people who can offer knowledge, skill and expertise.

Possible resource people could include:

- parents with particular interest and knowledge
- retired citizens
- local business people
- local historians
- members or employees of the council
- community service groups.

The involvement of people will encourage a better understanding of the part they play in the community. By working together on visits and shared projects, local communities and schools will develop a reciprocal understanding of the aims of each group. For example, children visiting a home for the aged, may gain an understanding of local history as well as assist the elderly citizens with their needs. They can in turn communicate with the young, and find comfort from their care.

People may offer insights into another place and time. From these personal stories, children gain more general perspectives about how much their world has changed and how much remains the same. They may learn qualities such as patience, sympathy and respect.

The teacher and resource people from the community can provide responsible models for children, demonstrating attitudes of care and concern, respecting varied options, exemplifying democratic processes.

The school can also demonstrate sound environmental attitudes for its community. School beautification, tree planting and initiation by the school of litter collection projects will set an example in community pride.

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Getting started – as a school

The environment can be a powerful educational resource, providing the raw material and the vehicle for learning.

The potential of the environment for these purposes is limited only by the creativity, imagination and resourcefulness of its users.

The environment is the raw material. How this is used will be directed in the first instance by the school's overall philosophy.

Educators need to think about:

- what they consider to be important
- what they want to do
- what they can do, given their particular circumstances and the needs of the children.

The aim of a school policy relating to the environment is to provide a guide for continuous, interdisciplinary experiences using the outdoors to promote awareness, understanding and a respect for the surroundings.

School policy provides direction on such matters as:

- how the environment enhances the educational programs
- how these environmental experiences relate to other aspects of that program
- staff support and development
- resources for environmental learning
- ways of recording and disseminating information
- procedures for leaving the classroom and the school (Ideas Bank — *A Checklist for Going Out; Excursion Regulations*).
- evaluation and communication.

The depth and range of children's environmental experiences and the quality of their learning will

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depend on the integration of this concept of environmental education into the total school program.

Total staff commitment to using the environment will help provide for children a continuous sequence of environmental experiences that strengthens awareness and understanding.

This continuity may not be assured where the program is dependent on the interests of individual teachers.

A firm knowledge base can be established when environmental education is seen as part of the mainstream of the curriculum.

The implementation of a school environmental policy may be facilitated by a group of interested people including a teacher co-ordinator, other teachers, parents, community representatives and children. This group will enable the integration of programs within the school and the implementation of projects initiated by interests both in the school and the community. The on-going responsibilities of this group might include:

- school group design
- Keep Australia Beautiful projects
- recycling schemes
- lowering school energy levels by increasing awareness of waste
- increasing community awareness of an involvement with the school. Encouraging projects which set the school as a model within the community
- liaison with other schools
- development and filing of school-based environmental materials.

The organisation of personnel and resources is vital if the potential resource of the environment is to be fully utilised. (Ideas Bank *Establishing an Information File.*)

Getting started – as a teacher

To use the resources that exist outside the classroom, teachers need to possess a knowledge of the possibilities of various environments, organisational skills to arrange excursions, group management skills in the particular environment chosen and an understanding of the needs of children in the situation in which they are placed. (COPE 1980)

The teacher's concern is to create a stimulating learning experience, turning familiar surroundings into exciting venues of exploration and discovery.

Several important factors need to be taken into account if the best use is to be made of the environment.

PLANNING

The teacher needs to have a very clear purpose for going out, and to identify the particular features of the site that will contribute to learning; the assistance of any other adults with special expertise in the area should be sought.

The teacher also needs to consider carefully:

- the needs, interest and experiences of the children
- the skills, knowledge and attitudes to be developed
- the curiosity and imagination to be fostered
- the range of questions which can be generated

With these considerations in mind, a teacher, often in collaboration with children, can determine:

- a focus for activity
- starting points for investigation
- questions to be explored
- how an enquiry might develop
- sites to visit

Children learn by responding to the objects and ideas in the environment, but they will be motivated to do this only if these objects and ideas have some meaning for them. For this to occur the objects and ideas must relate to or match the existing intellectual structures of an individual. (COPE 1980)

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MOTIVATION AND PREPARATION

Children must have clear expectations for their outdoor experiences. The expectations will guide their enquiries, give a framework for behaviour and maintain their commitment to the task. A sense of anticipation and excitement sets the scene and heightens motivation.

In the classroom, skills and knowledge will need to be developed and plans made before an outdoor activity is undertaken. A class, for example, might examine the differences between deciduous and evergreen trees before visiting the Royal Botanical Gardens in autumn or vertebrates and invertebrates before investigating insects. After working outside, the classroom becomes a place for reflection, discussion, illustration and more detailed recording.

Once outside, children should be actively learning by responding to objects, ideas, their senses and to what interests them. They can be making personal discoveries, solving problems collectively and connecting present experiences with those of the past.

It is not always necessary to adhere strictly to the planned focus or experience.

Children will respond in different ways, their curiosity or discoveries might provide a springboard to initiate other investigations or motivate imaginative thoughts. The teacher should be relaxed, flexible and sensitive, recognising when children are keen to investigate and when they need direction or when an activity should be concluded.

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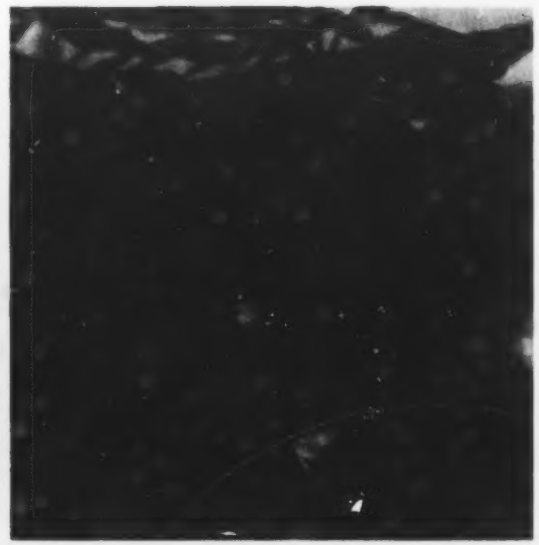

And the world cannot be discovered by a journey of miles,
no matter how long, but only by a spiritual journey,
a journey of one inch, very arduous and humbling and joyful,
by which we arrive at the ground at our feet,
and learn to be at home.

Wendall Berry

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Before leaving the classroom the children should:

- Be involved in setting clear aims.
- Discuss the need for an 'environmental code' (Ideas Bank— *Sample Code).*
- Know the behaviour expectations, limits of time, work area boundaries and attention signal(s).
- Check that their clothing is suited to the weather conditions (Ideas Bank *–Dressed to Survive).*
- Be aware of their responsibility in reducing damage and impact on the environment, especially unintentional damage to micro-habitats.

Once outside the teacher should:

- Establish a group meeting place where attendance can be checked according to an agreed routine.
- Reinforce behaviour expectations with more specific directions, such as pointing out perimeters in particular situations. Within these boundaries the children should be able to freely investigate and interact with each other.
- Establish a routine for maintaining purposeful activity. Bring children together in a close circle to share ideas and discoveries, to focus on concepts and to redirect or wind-up investigations.

Group Management

The classroom walls set the boundaries for indoor activities. Outside, these physical limitations do not exist to confine children and so the management of a class of children will be different. Planning should ensure that teachers and children enjoy the outdoor experience in a way which is safe, preserves the environment and maximises the opportunities for learning. To achieve this, teachers should acquaint children with the general arrangements and behavioural expectations but withhold any information about the outside that can be discovered on location.

Group Supervision

Children working in small groups (of about 6¢8) have a better opportunity to relate to one another. Thirty children crowding around a grasshopper will not gain as much from the experience as five groups each finding their own invertebrate.

It may be appropriate if children are working in groups, to assign specific group roles to help children work together. One child might be the journalist (taking notes), another the photographer or artist (sketching), others might be the encouragers (ensuring everyone participates and stays on task), summarisers (summing up points, ideas or discoveries), and reporters (telling others).

Mats made from thick plastic provide a secure place on which children can work.

The provision of an adult supervisor to each group, whenever possible, gives children a ready sounding board for their responses.

The teacher must take the overall responsibility for co-ordinating the total program of activities, but delegation of tasks will enhance the quality of learning. Supervisors can be responsible, for example, for some of the recording and can assist children with particular investigative skills.

All adults involved need to be familiar with the process of outdoor investigations. They need to be informed about guidelines for children's behaviour and the constraints of a particular location.

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PROVIDING A VARIETY AND SEQUENCE OF ACTIVITIES

Children learn in different ways. Being exposed to a wide variety of experiences provides opportunities for each of them to deepen their understanding. Children's ideas, skills and knowledge can be consolidated with opportunities to respond to experiences in different ways, and to develop interest in different aspects of a common study. A sequence of activities from the concrete to the abstract, from the direct to the indirect and from the immediate to the distant will further enrich children's learning. This sequence can begin with incidental experiences and explorations, leading to a focus on single aspects of enquiry, developing concepts and general principles of thought that apply to a range of experiences. The child's place in this sequence will be determined by the teacher's knowledge of the child's background experience, needs and interests.

In their involvement with these activities children employ and develop a range of inter-related skills in:

- **exploring**—by observing, watching, finding, moving, using all the senses, measuring collecting, identifying and investigating
- **communicating**—by taking, showing, sharing, recording and displaying
- **interpreting**—by drawing, sampling, estimating, classifying, predicting, explaining and analysing
- **evaluating**—by caring, assessing, comparing, judging and inferring.

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THE LIMITATIONS OF TEACHER KNOWLEDGE

While outside, children may ask questions that teachers cannot answer. The most useful and meaningful information will be discovered by children and teachers learning and investigating together. Quite often children's questions can be answered by their own enquiries or by the teacher modelling the processes of accessing information.

Careful, open-ended questioning by the teacher can build on children's responses and ensure that the investigation proceeds in a constructive way. Closed questions, however, imply a pre-determined 'right' answer and can limit divergent thinking and genuine enquiry.

A large range of reference material is available to support teachers in their efforts to guide and follow up on children's investigations. (Ideas Bank—*References and further reading*.) The best and most relevant reference information sources may be those built up by the school, teachers, children and the community.

Collections of children's work resulting from their investigations and teachers' planning notes will provide a most useful guide to others. These collections will detail the learning potential of the school's environment. These resources can be tied to information from local, regional and state organisations and institutions. (Ideas Bank—*Resource File*.)

Teaching strategies to maximise learning

Be a partner in the children's learning, discovering and imagining.

Ask open-ended or probing questions and the requiring actions that stimulate investigations or a second look.

Utilise discoveries, value spontaneity.

Encourage the use of the children's senses.

Allow the experiences to teach or develop concepts, skills or understanding.

Seek unusual vantage points or view points:

- Lie on your back and look up at a tree.
- An ant's eye view of you and your world.

Ask for elaboration or justification.

Encourage the use of analogies and invented names to help children connect new concepts to the familiar e.g. *'Red, trumpet prickle bush'* will mean more to a child than *'Astroloma humifusum'*.

When children are ready, show them how to look up scientific names.

Use fantasy and drama e.g. *Imagine a rainbow fell over the track and cracked into tiny pieces ...*

Take advantage of interesting events or activities occurring in the school grounds.

Model attitudes of sensitivity and responsibility towards the environment by respecting the rights of its inhabitants (Ideas Bank— *Teaching Strategies*).

A step at a time

A teacher's initial use of the environment may be aimed at establishing work and behaviour patterns and routines for leaving and returning to the classroom.

Specific, clearly defined activities of short duration may, therefore, be undertaken by the class at first.

A class might regularly go out to measure the length of specific shadows such as those cast by buildings, netball goals, fences, playground equipment, shrubs or individual children. The information could be graphed, patterns looked for and predictions made. Where a number of variables are involved, a computer data base might be established. Such activities could be undertaken hourly, daily, weekly, even monthly.

Once the teacher and children become familiar with using the environment as a learning resource, the scope, boundaries and length of time spent outside could be increased. Skills developed previously might be applied or extended to longer term or more intensive investigations.

Stories, poems, television programs, photographs and paintings may provide the initial stimulus for investigating the environment. Once outside, there is no need for fiction to cease and everyday reality to take over.

Children can use the environment to explore and enrich the fantastic and imaginative idea that has been started. (Ideas Bank— *Starting Points, Story Example*).

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RECORDING

There are many ways of recording experiences when using the environment.

Experiences can be captured through:

- photographs, slides
- tape recordings, of sounds or interviews
- video
- rubbings
- drawings
- collections of significant objects, 'treasures'
- measurements
- written collections of words and phrases — on-going or in the form of five minute brainstorms

Where photographs tend to prescribe a scene, a word or phrase about an experience can spark a range of personal responses from children recalling the event. By recording these words on ringed cards they can become an accessible resource of excursion words for use with follow-up activities.

The emphasis on recording should not replace the experience. If the demands made upon the child's ability to record are excessive or if the method of recording is too involved, the child's success in gathering information will diminish.

A record of discoveries and opinions may be made at the time of the experience or noted later in a follow-up activity.

When questions cannot be answered on location, teacher or learners will need to keep a careful record for later research.

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FOLLOW UP

Follow-up to an outdoor experience can consolidate learning, increase knowledge and reinforce concepts. It can help the child to understand the experience and find out more about it through investigation, research, reflection and interpretation.

This may lead to 'spin-offs' into a variety of interest areas.

Follow-up activities provide a powerful means of reinforcing the effects of the experience but they are not always imperative. It may be enough for the child just to have been involved. This may have more impact than any interpretative experience.

Just as the environmental activities should be varied, so should the follow-up. Children will be attracted to different aspects of their visit. Opportunities for personal interpretations will enable the child to respond through genuine interest. The availability of equipment such as tape recorders and art materials can facilitate this response.

The nature of follow-up activities will vary with the experience, the resources and skills of participants and the reasons for expression and communication.

Each class and teacher can draw up their own range of response strategies.

Display of materials, references and children's work can be the result of, or the starting point for, an environmental activity. The teacher, other adults and other children provide an audience for the art, music, drama, writing etc., that may be produced through these experiences.

It is well known that language skills are especially fostered when the activity has real purpose for the children, when the context is inherently stimulating and when children have to make their meaning clear to a range of audiences. Environmental experiences contain these elements, offering reasons for talking, thinking and writing in such activities as planning a route, listing and buying materials, keeping a journal, writing invitation and thank you letters and debating an issue.

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EVALUATION

Evaluation is an important part of the teaching and learning process.

A careful review and evaluation after a series of activities, enables the teacher to assess:

- the progress of individual children
- the relationship of these experiences to short and long-term goals
- the effectiveness of the planning and implementation of the particular activities
- the appropriateness of these for the children concerned
- the kinds of recording and reporting that are most suitable

By monitoring feedback and judging the success of the experience in terms of the predicted aims, teachers gain a sound basis for future planning.

In the context of environmental activities, special considerations arise.

What activities stimulated and challenged children most?

What opportunities did children have to actively explore and to talk about the activities?

Did the children have appropriate knowledge and skills to make the most of the experiences?

Leadership and group supervision — was it successful and enjoyable for all participants?

What problems were encountered? How could these be overcome?

Where the behavioural expectations understood and followed?

Did any children show special initiative or skill?

How successful and relevant were the recording techniques?

Much of this information can be observed first-hand but feedback in terms of process and content can also be obtained directly from children's evaluation of the experience.

The process of reflection helps children to remember, to clarify their understandings, to consolidate learning and to accommodate the new experiences to their view of the world.

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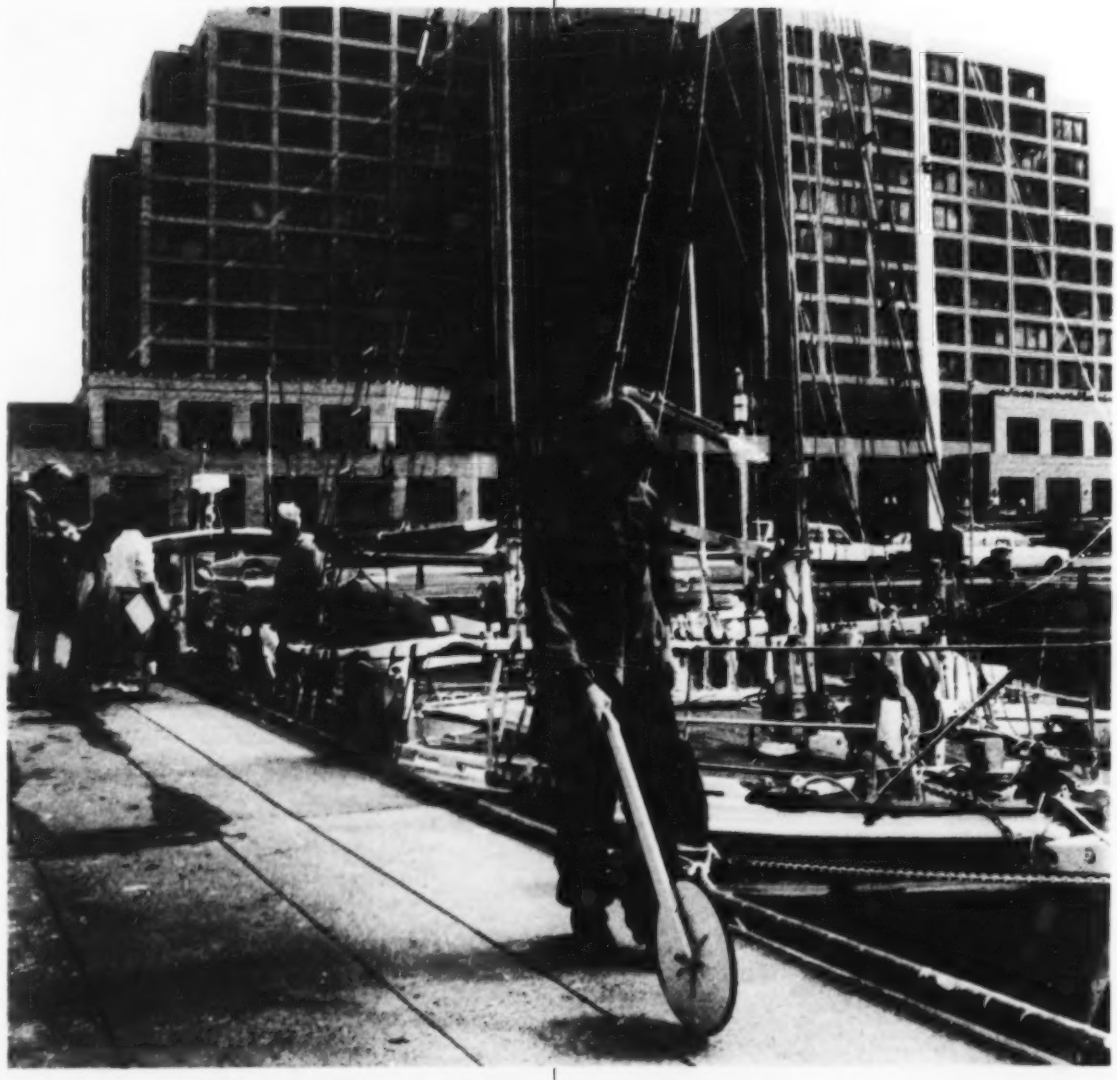

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ENVIRONMENT IDEAS BANK

1 Using the schoolgrounds

The schoolground is the first and most obvious place to be used in investigating the environment.

Using the schoolgrounds avoids the random, fragmented experiences of an isolated day out. Children are able to see changes which occur over time, and understand the interrelationships and the diversity of a place which is known to them.

The schoolground has wider implications than just a place to play.

Children need not only places to run and sit but to

bounce	invent
investigate	rest
decide	read
act	make
relax	smell
be free	re-arrange
roll	hide
explore	balance
climb	rock

shout	interact	skip
chat	pretend	reach
laugh	dig	discover
cry	push	enjoy
whisper		
swing		
jump		
lift		
imagine		
slide		
crawl		
chase		

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Using the schoolgrounds

All schoolgrounds differ. They range from asphalt jungles to established sites with forests and streams. No matter how bare they are, they offer a variety of learning opportunities. They may be large or small, old or new, flat or sloping, windy or sheltered, enclosed by houses, bushland, or farmland. The combination of conditions makes each site unique. The position, size, shape, aspect and design of the school (and its grounds) relate to the surrounding physical and social environment. The school will have been built on foundations of rock covered with layers of soil forming a landscape of natural and made habitats. Animals and plants will live in trees, cracks and mortar. All this in turn will be affected by climate.

Find out what children think about their schoolgrounds

What did you do in the schoolground today?
What do you like best in the schoolground?
What don't you like about the schoolground?
Make a list of things you like doing in the schoolground.
Make a list of things you like doing but can't do.
How could your schoolground be improved?
Design your ideal playground.

In your schoolgrounds, where could you

'Hang about', listen?
Explore, go for a quiet walk?
Find shelter, find shade?
Climb a steep bank?
Roll down a hill?
Sit on a rock?
Find a secret spot, play 'hide and go seek'?
Find interesting smells?
Find a colourful place; a dark place?
Do something exciting?
Climb a tree?
Look under rocks?
Find animals such as insects, lizards, birds?
Build something?
Play team games, kick a ball as far as you can?
Ride a bike?
Feel safe?
Plant something?
Find something beautiful, unusual, interesting?
Be by yourself?
Meet in a small group or a large group?
Produce a play?
Balance, slide, swing, run, jump and hang?
Play in some water, sand?
Have a picnic, a barbeque or light a fire and cook damper?
Dig for worms, dig a tunnel or make a big hole?
Care for animals?

Developing schoolgrounds

'The outside areas should allow space for both noisy and quiet, and large and small activities, eg story-telling, reading, mathematics, drama, play, scrambling, climbing, running, rolling and ball games. Grounds should be aesthetically pleasing and plantings include specimens which attract birds. In some schools it is still possible to fence off spaces where native flora may thrive. This is particularly useful as a conservation exercise. A well-planned school playground provides stimulation and variety in children's learning.

Possibly few schools presently fully use the possibilities available in the immediate environment. A sensible and economic use of funds appears to be to build outside stores for movable purpose-designed equipment, eg trestles, ladders, ropes, bouncing boards and a collection of junk and carpentry tools. Teachers and children can then adapt the outside area to suit interests, skills and imaginative play or games of the moment.'
(COPE 1980)

The first step to improving a site is to draw up a map showing existing features. This will provide a framework for discussions by a working party of staff, students, the groundsworker and interested members of the community. This will ensure that features of the total area are related and not developed in isolation.

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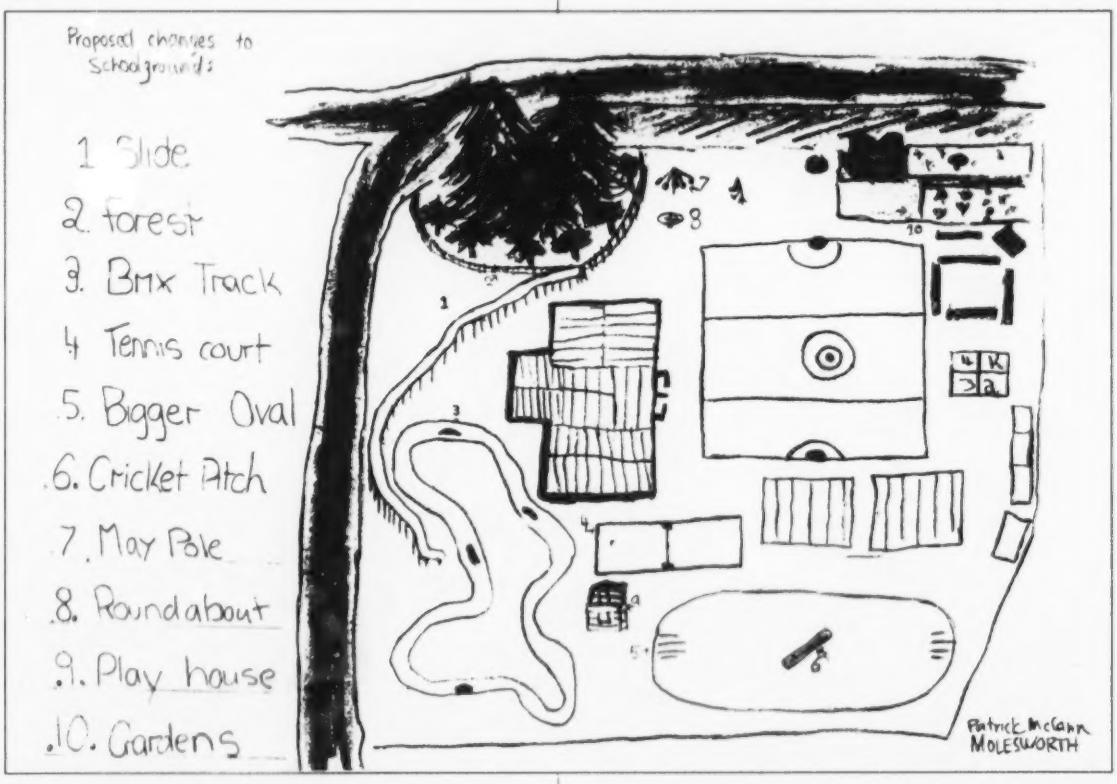

In assessing the site and the possibilities for improvement, the main pattern of present usage should be established. Children are the primary users and the success of any developments will be largely determined by them. Their active involvement in meaningful decision-making and problem-solving throughout such a project will develop their awareness and knowledge of, and attitudes to their local environment.

The advice of a consultant or the expertise of a landscape architect can provide innovative suggestions for the development of schoolgrounds.

General considerations might include:

- Safety – soft landing areas around equipment. Periodic checks should be made.
- Beauty – the sensory appeal of colour, shape, texture, smells and sounds will help to make the schoolgrounds an enjoyable place.
- Range – schoolground development should cater for young and older students.
  Frequently kindergarten children are provided with a range of materials isolated from older children who have only a barren playground.
- Variety – the provision of quiet, active, individual and group play areas gives children choice in their activities. Many schools have waste areas which are not used because they are remote, exposed or unattractive. Planning environments with a diversity of interest means these areas can become places to be valued
- Shelter – exposed conditions make many playgrounds uncomfortable for children. If children can find protection from sun, wind and rain, they will be more involved in the schoolground environment.
- Maintenance – this can be a problem particularly in the beginning stages of schoolground development. Children can help by being given responsibilities which will reinforce their feelings of concern for the area.
- Vandalism – this is often the biggest concern for schoolground developers and is frequently cited as the main reason for not proceeding with any development at all. Involving children in their schoolground is an important way of bringing them to understand and respect their surroundings. Even though vandalism of their efforts will be a source of great disappointment, children should be encouraged not to be daunted by it.

Plants

The richest resource in the schoolground are plants. They are important because they

- define areas
- provide beauty, and a variety of form

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- provide homes for animals
- modify the environment
- are a biological and historical resource
- stabilise the soil
- provide protection from wind and sun
- screen noise and unattractive places.

A variety of plants can provide a wealth of interest for collections and classification and can become a natural, stimulating backdrop for the senses.

The selection of trees should primarily relate to the local vegetation, thus creating an important resource for children's learning about their own environments. If there is no evidence of original, natural vegetation in the schoolgrounds, visits to local bush areas, searching for remnant plants in gardens, and obtaining information from old residents may help in the restoration of the area.

Other considerations for choosing plants might include

- colour
- seed dispersal
- historical plants
- edible plant varieties such as edible natives, vegetables and fruit and nut trees.

I like to play on the back oval because it is big and you can run around. I don't like our playground because it's got too many artificial things and not enough natural things. It could be improved by putting in swings and a slide down the hill on the back oval. It would be fun to have a vegetable garden so that we could grow our own things. A bush trail would be nice. I would like to be able to go anywhere I liked in the playground. The nicest places in our playground are for little children.

Jackie

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ENVIRONMENT IDEAS BANK

2 Some teaching strategies and starting points

In approaching environmental education there are many practical ways for teachers to sustain interest.

- Allow children to choose a friend to work with for the day.
- Use sharing circles, including parent helpers, rather than leader-follower instruction.
- Agree upon a stop signal and listen to surrounding sounds at various intervals.
- Create interest in the on-going journey:
  In pairs, decide on an audible signal (such as hitting two rocks together) and alert partners to interesting findings;
  Walk ten steps and look under your soles;
  Go for a walk with a magnifier, a portable microscope, a mirror, a ball of clay to collect impressions and a metre string;
  Estimate and measure distances on a walk;
  Use fantasy and drama. For example, tell the story of a treasure chest which had been carried along the track. Inside the chest were beautiful natural objects like sparkling rocks and skeleton leaves. The chest was so full that some of these beautiful objects kept falling out all over the track ...

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STARTING POINTS – A NATURAL ENVIRONMENT

Through exploring the local bushland area, children use their sense to experience the environment to gain new knowledge, skills and appreciation

Activities such as	Involve children in
Making collections of leaves, bark; throwing a hoop randomly on the ground; looking for animal signs, eg spider webs, ant holes, chewed leaves; looking for weeds, lichen, fungi, ferns.	Observing – colour, tone, shape, size, movement, lines, texture, perspective.
Scratching and sniffing; crushing and sniffing soil, leaf litter, leaves; rubbings, clay prints; blind- fold walk; comparing temperatures using different body parts; looking for animal tracks.	Using the senses – smelling, listening, touching, moving.
Creating an environmental code; describing found objects and their habitat.	Developing care and appreciation.
Discovering characteristics of plants and animals; grading leaves, tabulating measurements; noting seasonal changes, shadows, circumference of trees; discussing microhabitats, interdependence of living things, topology, growth and decay, fungi, soil changes.	Classifying and ordering data; estimation and measurement; prediction, speculation, investigation.
Drawing, writing, tape-recording	Recording, synthesing and reporting skills.
Poetry, drama	Working together, relating experiences, expressing responses.
Mapping of main features of the area; hoop studies; quadrants, random selections.	Sampling, mapping, surveying and graphing techniques.
Establishing a local herbarium; pressing plants, drying fungi, mounting invertebrates.	Collecting and preserving techniques.
Finding relationships between plants and animals – as food, shelter (food chains).	Inferring, speculating, justifying.
Classifying plants and animals; examining erosion, impact of man, preferred habitats; weed studies.	Problem-solving.

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STARTING POINTS – A STUDY OF INVERTEBRATES

After talking and reading in the classroom, children can identify some of the things they want to find out about invertebrates living in the nearby environment. Further questions and areas for investigation emerge as children use their senses to observe and investigate.

Activities such as	Involve children in
Using a magnifying glass; discovering habitats under rocks, logs, bark, on leaves, in leaf litter; making insect traps; doing a leaf shake; comparing homes and microcosms; running worm races, snail races.	Observation – locate invertebrates, watching movement, noting structure, shape and size.
Investigating parts of insects, coverings, camouflage.	Purposeful talk – about how insects feed and breath.
Keeping invertebrates as pets (mealworms, silkworms, slaters, earthworms, mosqito larvae, snails and ants).	Comparison – invertebrates vs invertebrates; microbes, bacteria, moulds.
Comparing hot/cold, wet/dry, light/dark environments; comparing populations with seasonal changes.	Experimentation – hypothesising about the creature's preferred living conditions and responses
Discussing food chains, ecological balance, parasites and pesticides, herbicides and biological control.	Speculation – discussing issues such as the value of invertebrates, and problems such as parasites and disease
Comparing invertebrates and vertebrates.	Classification – collecting, identifying and classifying specimens. Generalisation – discovering the chacteristics of insects.

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STARTING POINTS FOR STORIES

The Riddle of the Trumpalar Judy Bernard Waite.

A novel for children aged 8-11.

Two inner city children set out to save an ancient Moretan Bay Fig known as the Trumpalar Tree, in their local park. Their affinity with the tree and their endeavours to protect it draw them down into the mystical world of the Trumpalar. This world links present and past, helping the children find the key to saving the tree.

Activities connected with the story

Examine closely the school or local environment. Identify and categorise noteworthy features—small or large— and map.

Develop an affinity with the immediate environment—children identify or choose favourite or special places in the school or immediate environment.

Map the location and the route to the 'special place'.

Using inquiry skills, investigate the animals and plants within or on the surface of the 'special place'.

Drama—invent a ceremony to enter a hidden land or world within the 'special place'.

Lead children into a world of fantasy and imagination using objects in their 'special place'.

Problem solving—consider the dilemma of how to save the 'special place' from destruction.

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ENVIRONMENT

IDEAS BANK

3 Organising with trails

One way of organising an outdoor experience is by making a trail. A trail is a set route along which teachers can plan activities to highlight areas of interest for learners to follow. Trails can be set up in a classroom, in the schoolgrounds, along a street or in any place where a sequence of 'stations' can be identified to promote the investigation of some aspect of the environment or the curriculum.

The most common idea of a trail is a path along a natural area with a set of markers that identify significant plants and other features. The establishment of permanent trails will limit erosion of a frequently used area. Such a trail can be used in a variety of ways when groups focus on different interest areas along the route. However, permanent trails may lose their novelty once a variety of interest areas have been explored. Also, permanent markers are prone to be vandalised.

The best trails are self-made, produced specifically for the interests of a group. They may be long or short and include set stations or simply provide a path for a possible area of investigation.

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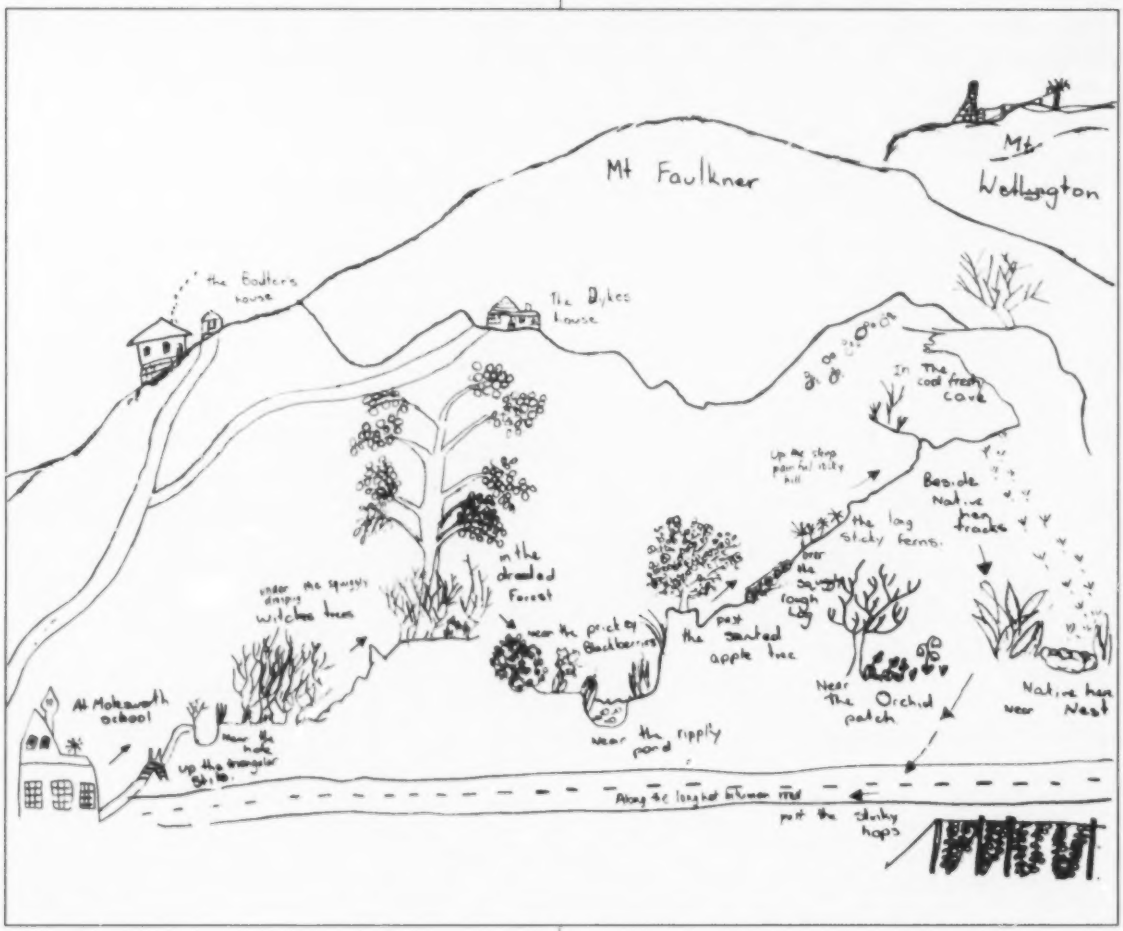
Trail preparation

The preparation of a trail involves the selection of suitable sites that will adequately contribute to the objectives of the investigation. For example, a sound trail would be planned on the basis of a series of listening posts in an accessible area; a fitness trail would be made in an area providing a variety of movement opportunities.

To define a trail, ways of directing attention need to be considered. Possibilities include

- the personal guide, the trailmaker, who leads the groups around the special features
- a cassette recording with prerecorded oral instructions
- written information, eg a leaflet or trail cards
- flags
- trail markers
- rope
- a map
- photographs
- an identikit of things to look for – samples of rubbings, drawings, leaves, gumnuts and pressed plants.

The variety of trails is limited only by the imagination.


Mt Faulkner
Mt Wellington
the Baulters house
The Dykes House
In The cool frosty cave
Up the steep parfait sticky hill
Beside Native hen tracks
the log sticky ferns
over the smelly rough log
past the smelled apple tree
Near The Orchid patch
Native hen near Nest
under the spongy dripping wattles trees
in the drenched Forest
near the prickly Blackberries
At Mokaroth school
near the hole
up the triangular stile
near the ripply pond
Along the longest blue mat
past the stinky hops

A micro trail

A very short trail, defined by a metre length of string, is covered by 'hikers' on their stomachs, centimetre by centimetre, with a hand lens. Flags made from toothpicks and card can be placed at points of interest.

Blind texture trail

A long string is used to guide blindfolded explorers and their partners along a texture route. Pipe cleaners can be used on the string to indicate the points of interest. The string trail can be used in the classroom and outside.

Photo trail

Photographs can be used to focus on particular aspects of the environment and can be a guide to the sequence of stations along a trail.

The photographs could increase in difficulty; for example, ranging from distant colour photographs (greater than three metres away) to close-up black and white photographs (up to 30cm away), and then to sketches.

Error trail

Draw a number of objects which students can find at different places along a trail. In each drawing, however, ensure that there is an error which students must identify.

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ENVIRONMENT

IDEAS BANK

4 A checklist for going out

Planning and organising

- ☐ Consider aims (See *Ideas Bank 5: Sample school policy*)
- ☐ Devise activities to fulfil aims (See *Ideas Bank 2: Teaching strategies and starting points*)
- ☐ Find a suitable location for activities and check access
- ☐ Obtain initial approval from principal
- ☐ Obtain permission to use the area or book the venue
- ☐ Contact personnel on site (if necessary)
- ☐ Visit the site. Check features such as shelter, toilets, highlights and potential hazards
- ☐ Arrange transport (if necessary)
- ☐ Check children's medical history, eg allergies to insect bites and foodstuffs
  Inform students, parents and other staff of the event and their involvement in it
- ☐ Send out consent forms (if necessary) including date and time of visit, general information on the aims of the trip, travel arrangements, cost, food and suitable clothing
- ☐ Invite helpers
- ☐ Prepare the program of activities and give copies to assistants
- ☐ Prepare children with the aims of the experience
- ☐ Prepare children with preliminary knowledge and skills
- ☐ Prepare an environmental code (See *Ideas Bank 6: Environmental code*)
- ☐ Consider safety and comfort, clothing and food (See *Ideas Bank 7: Dressed to survive*)
- ☐ Collect consent forms and money (if necessary)
- ☐ Prepare equipment, including first aid kit
- ☐ Obtain final approval from principal and Education Department (if necessary)

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The day before

- ☐ Check weather forecast
- ☐ Pack equipment — camera, science and maths equipment, first aid kit
- ☐ Remind children about clothing, behavioural expectations including environmental impact
- ☐ Confirm bus booking with arrival and departure times (if necessary)

Before you leave

- ☐ Check absentees
- ☐ Count children
- ☐ Allocate children to adults
- ☐ Check clothing - coats, shoes
- ☐ Familiarize children with the proposed timetable and program
- ☐ Toilets

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ENVIRONMENT IDEAS BANK

5 Sample school policy

Rationale

Use of the environment is important if children are to know, understand and appreciate the world in which they are growing. The environment offers

- a meaningful place for learning
- an immediate focus for increasing knowledge and skills
- a means of developing attitudes of care and concern for the quality of the environment.

The importance of environmental experiences

The school's curriculum can be enhanced or extended by the utilisation of environmental learning resources. Learning by using the environment provides

- meaningful experiences relating directly to children's lives, enabling them to become familiar with their world and experience changes within it
- active learning through direct experience with real objects or events
- a variety of experiences using the senses
- stimulus for curiosity, for children to discover and make connections with what they already know
- motives for considering important issues and ideas
- a real purpose for thinking and using language: reasons to care and show responsibility
- an important stimulus for developing a sense of wonder.

Using the environment: Goals and values

- We recognise the value of the environment as a learning resource and our school and its schoolgrounds will be the starting point.
- The school and its grounds will be developed and maintained as a model within the community.
- A strong emphasis will be placed on children's involvement in playground development and beautification, anti-litter projects, energy saving strategies and recycling.
- An extension will be made into the local area by working with community groups. The possibilities of specific environmental learning resources will be identified in our local and extended environment.

- Our school will encourage the involvement of the local community, drawing on the expertise of citizens.
- A register of facilities and resource people in the community willing to assist will be kept by our school.
- We recognise the importance of liaising with other schools, including the neighbourhood secondary school.

Staff support strategies

- Appoint a teacher to coordinate the collection and dissemination of information and resources. This coordinator will be encouraged to:
  . give practical support and assistance to classroom teachers using the environment;
  . establish a collection and storage point for resources and information including classroom programs with examples of children's work.

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Sample school policy

- In consultation with senior staff, develop guidelines for the organisation and management of all excursions. This document will include current departmental regulations, safety provisions and teacher–pupil ratios.
- Establish a policy which ensures that a planned sequence of environmental experiences (including residential experiences) is matched to children's stages of development.

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ENVIRONMENT IDEAS BANK

6 Environmental code

Environmental impact

Management of the environment needs to be considered in any outdoor experience. People have an effect on the environment just by being there. Children need to be made aware of the damage that can be caused by:

- not replacing rocks
- stepping on plants
- overuse
- noise disturbance
- collecting.

The most common form of disturbance is collecting. Picking plants should only be justified for special purposes and is prohibited in national parks. The teacher should provide a model of care and concern for the environment. Children can be encouraged to develop their own conservation principles and formulate an environmental code.

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ENVIRONMENTAL CODE

In your explorations of your surroundings don't forget your environmental code

Many people will visit this area after you, so leave no signs that you have been here. Some of the important things that you might remember when you are walking in the bush, in the countryside, in the park, in the city or at the seaside are:

- *Get the knack, bring your rubbish back*
- *Watch where you step*
- *Replace anything you move*

What are your ideas?

ENVIRONMENT IDEAS BANK

7 Dressed to survive

Winter

	Points	My score
Waterproof coat	20	
Woollen jumpers	10	
Woollen hat	10	
Woollen scarf	5	
Woollen gloves	10	
Warm long pants	10	
Woollen socks	10	
Strong shoes	10	
A healthy lunch with fruit	10	
Energy food	5	
TOTAL	100	
	MY TOTAL	

Summer

	Points	My score
Suntan cream	10	
Insect repellent	10	
Waterproof coat	10	
Strong shoes	10	
A healthy lunch	10	
A drink	10	
Protective clothing	10	
Sun hat	20	
Cotton clothes	10	
TOTAL	100	
MY TOTAL		

ENVIRONMENT

IDEAS BANK

8 Establishing an information file

An environment information file should provide information and guidelines for teachers in their basic planning of outdoor activities. It should include

- school policy statements
- departmental policy on outdoor education; this is contained in *Tasmanian State Service Regulations* 25(1)(a), 25(9) and *Education Regulation* 27(1)(e); *Guidelines for excursions and activities*; *Administrative handbook*; and *Handbook on outdoor education activities*.
- school routines for organisation – information on booking buses, costs, excursion permission forms
- a directory of sites, including accessibility
- a list of useful contacts
- maps and aerial photos of the school, town and district
- local information – books, articles, newspaper cuttings and interviews with local residents, in the form of a local community and district archive
- programs of outdoor activities conducted in the school.

Information on particular sites or topics can provide a valuable stimulus for others. Documenting experiences preserves them as a resource long after teachers leave the school, and enables comparisons to be made.

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Resource bank for equipment

Outdoor programs are more effective when materials and equipment are readily available. As resources accumulate, storage and ready access to equipment needs to be considered.

Equipment resources

- storage equipment
- collecting containers such as film containers and plastic bags
- carry bags – for ease of carrying equipment and food
- maps of the area – including aerial photos
- measuring equipment – tape measures, metre lengths of string
- plastic folding hoops
- plant identification folder of pressed and laminated plant specimens
- an outdoor interest box of collected items
- clipboards with pencils on strings (where appropriate)
- resource cards and information from previous explorations
- logbook for important events and observations
- magnifying glasses
- portable microscope (light scopes)
- field guides or reference books (see *Environment Bank 10: Reference* s)
- first aid kit
- plant press

First aid items for a portable kit (based on the St John Ambulance first aid kit)

- antihistamine cream (eg 'Stingose'), burn cream, packet of Jumbo bandaids
- 2 cotton crepe bandages
- 5 triangular bandages (or an air splint)
- 12 sterile dressings (large)
- 1 bottle painkilling tablets
- 250ml antiseptic fluid
- 1 instant cold pack

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ENVIRONMENT IDEAS BANK

9 Residential experience

Where to go

Residential experiences are available in a variety of environments — alpine, coastal, urban, rural and isolated areas. Residential situations may be catered or uncatered, with resource staff or just camp sites. The choice will depend on the availability of sites, and decisions may need to be made up to a year in advance.

More than 70 camps and hostels are listed in the *Camps & Hostels Directory* available from the Department of Sport and Recreation, Kirksway House, Kirksway Place, Battery Point, 7000.

The needs, capabilities and interests of children should be given consideration and correlated with a planned sequence of their outdoor activities and residential experiences. Clearly, a self-catered, isolated camp needs to be preceded by both overnight camps at school and shorter, catered, residential experiences if children are to feel secure and confident in an isolated situation.

Through careful planning of the program, the coordinating teacher of a residential experience can promote efficiency and still allow for flexibility. The program should be closely linked with previous environmental experiences and the overall school policy.

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Some considerations

Personal history

Teachers should be aware of medical histories (such as allergies to insects or food, bed wetting, travel sickness, home sickness and administration of medication).

Supervision

The ratio of adults to children should reflect the total time demands on adults and allow supervisors sufficient free time.

Social development

The 'living' aspect should be part of the program. A social atmosphere can be created by having a camp fire, a sing-along or night games. Competitive group games may help to encourage a team spirit. Making children's living responsibilities more fun and less of a chore will encourage a cooperative attitude.

Programming of activities

The link between the camp program and the home and school environments is important. Camp programs can offer children a gradual 'journey' of understanding from their usual environments. Learning can be extended into the context of the new 'away from home' camp environment.

Planning will enable children to make valuable comparisons and judgments concerning their environments.

ENVIRONMENT IDEAS BANK

10 References

A large range of reference material is available to support teachers in their efforts to guide and follow up children's investigations. There are a number of very useful local publications which provide background information on environmental phenomena including plants, animals and the climate of Tasmania.

However, much of the content of these guides will not relate directly to the specific area being studied. The best and most relevant reference sources will be those which have been built up by the users themselves. A collection of pressed laminated plant specimens and an insect collection can provide both a stimulus and a reference for comparison with other areas. Such a collection may provide a focal point for comparative visits by other groups.

A local resource bank growing from children's investigations will provide the most useful guide to the local environment. It can provide children with a clearer perspective of information from the wider context of the region and the state. Organisations such as the Society for Growing Australian Plants, the Museum, the University, and the Departments of Agriculture, and Lands, Parks and Wildlife are sources of assistance for specific queries and for the identification of specimens.

Reference material which follows is listed under four headings:

- Books with practical ideas and activities
- Books for getting organised in the environment
- Useful reference books (fauna)
- Useful reference books (flora)

Each entry contains a title, author and/or publisher, a brief description, where it may be obtained, and its price, if known.

BOOKS WITH PRACTICAL IDEAS AND ACTIVITIES

Environmental activities for infants

Gould League of Victoria

A booklet of practical ideas on the sea, at school, in the park, on winter and on trees.

Available from: Gould League of Victoria, PO Box 446, PRAHAN, 3181.

Price: $1.00

Some environmental measuring techniques

Gould League of Victoria

A collection of observation and measuring techniques for field activities from water sampling and ant mapping to traffic counts.

Available from: Gould League of Victoria, PO Box 446, PRAHAN, 3181.

Price: 75¢

Monsters and minibeasts: Combining language with nature study

Gould League of Victoria

Excellent practical ideas suitable for any outdoor environment. Ideal for teachers with no previous experience.

Available from: Gould League of Victoria, PO Box 446, PRAHAN, 3181.

Price: $2.00

Fun in the parks

Gould League of Victoria

Practical suggestions for chidren's activities and games suitable for places in and beyond a park.

Available from: Gould League of Victoria, PO Box 446, PRAHAN, 3181.

Price: 50¢

Environmental log book

Gould League of Victoria

An activity book for recording environmental phenomena throughout the year.

Available from: Gould League of Victoria, PO Box 446, PRAHAN, 3181.

Price: $1.50

Environmental starters

Gould League of Victoria

Numerous ideas for getting kids started and alerting them to specific features within their environment. The ideas could be directly made up as trail cards.

Available from: Gould League of Victoria, PO Box 446, PRAHAN, 3181.

Price: $4.00

Acclimatisation
Steve Van Matre

A program of ideas to help develop understandings and a feeling for the environment.

Available from: Victorian Association of Environmental Education, 284 Little Lonsdale Street, MELBOURNE, 3000.

Price: $7.50

Acclimatising
Steve Van Matre

A program of ideas to help develop understandings and a feeling for the environment.

Available from: Victorian Association of Environmental Education, 284 Little Lonsdale Street, MELBOURNE, 3000.

Price: $9.00

Environmental education across the curriculum
Tasmanian Environment Centre, 1984

Ideas based in a range of curriculum areas. Includes energy, interdependence of living things and the importance of natural resources of water, air and plants.

Available from: Tasmanian Environment Centre, 102 Bathurst Street, HOBART, 7000.

Price: $4.50

Our urban environment
Department of the Environment

A collection of urban trails around Hobart complete with activity ideas on litter, buildings, noise and traffic.

Available from: Department of the Environment, Kirksway House, Kirksway Place, HOBART, 7000.

Price: Available on application

BOOKS FOR GETTING ORGANISED IN THE ENVIRONMENT

Children in the built environment: guidelines for planning & design
James Barnard, 1980

A book about developing community playgrounds with good ideas for developing schoolgrounds

Available from: Department of Urban and Regional Affairs, 50 Grenfell Street, ADELAIDE, 5000.

Price: Approximately $4.50

The way to go
Gould League of Victoria

Useful ideas for teachers organising excursions.

Available from: Gould League of Victoria, PO Box 446, PRAHAN, 3181.

Price: $1.50

Learning through experience
Lauderdale Primary School,

A booklet which identifies and develops ideas on the local environment. A useful model.

Available from: the Principal, Lauderdale Primary School

Price: $4.00

Environmental education: a source book for primary education
Curriculum Development Centre, Canberra

A collection of case studies describing teachers' programs.

Available from: Curriculum Development Centre, PO Box 52, DICKSON, ACT, 2602.

Price: $13.95

Maths trails
Princes Street Primary School

Maths trails around the school.

Available from: Princes Street Primary School

A guide to the reserves
National Parks & Wildlife Service, 1984

A teachers guide to national parks and historic sites in Tasmania with background information on pre-visit planning and the role of National Parks.

Available from: Department of Lands, Parks and Wildlife, Macquarie Street, HOBART, 7000.

Price: Available on application

The environment as a learning resource
Lilydale District High School

A developmental K–10 outline of activities involving change, growth, colour, interdependence, sense and sensations.

Available from: Lilydale High School

Trevallyn State Recreation Area: Teachers' handbook and walking trails
Trevallyn Project Committee

Detailed information of resources at the Trevallyn State Reserve, with an activity guide and details of five walking trails with features of interest.

Available from: Trevallyn Primary School

Outdoor education planning considerations for programs conducted outside the classroom
Outdoor Education project team, South Australia Education Department, 1981

A practical guide to the organisation of camps and outdoor education programs.

Available from: Education Department of South Australia

A model primary environmental education program: a complete school approach

Warrandyte South Primary School

A comprehensive guideline and model for the development of environmental education from awareness to the study of issues.

Available from: Warrandyte South Primary School, WARRANDYTE SOUTH, 3134.

Survival discovery series. The urban book

Gould League of Victoria

A booklet of numerous activities with basic identification charts of flora, such as weeds and grasses, and fauna including pond-life and mini-beasts.

Available from: Gould League of Victoria, PO Box 446, PRAHRAN, 3181.

Price: $4.00

Trees: A book of resource ideas for the teacher

Nel Smit, Education Department Tasmania

An activity-based book, providing succinct information about the parts of a tree, uses, propagation, and ideas relating to all areas of the curriculum.

Available from: Curriculum Resources Section, 252 Argyle Street, NORTH HOBART, 7002.

Price: $2.60

Environmental games

Gould League of Victoria

A collection of games and ideas for developing awareness in the environment.

Available from: Gould League of Victoria, PO Box 446, PRAHAN, 3181.

Price: $5.00

Using the environment (3): Tackling problems

Margaret Collis, MacDonald Educational

Suggestions for controlled experimentation outdoors including observing, measuring, recording and predicting

Available from: Bookshops

Price: $12.95

Using the environment (4): Ways and means

Margaret Collis, MacDonald Educational

Deals with the provision of facilities, raw materials and equipment children need for outdoor investigations and school follow-up activities.

Available from: Bookshops

Price: $12.95

USEFUL REFERENCE BOOKS (FAUNA)

Mammal tracks and signs

Barbara Triggs, Oxford University Press,1984

An excellent reference for the identification of tracks, shelters and bones with details on where to look and the preferred habitats of mammals. Includes keys.

Available from: Bookshops

Price: $12.95

Complete book of Australian birds

Readers Digest 1976

Photographs of every Australian bird with a distribution map and description of identification points, voice, and nesting habits. A comprehensive and clear reference for novice bird watchers.

Available from: Bookshops

Price: $30.00

Tasmanian native mammals

Phil Andrews, illustrations by Jane Burrell

A very handy booklet with beautiful illustrations of our native fauna. Descriptions include recognition, distribution and characteristics of each animal.

Available from: Tasmanian Museum and Art Gallery, Macquarie Street, HOBART, 7000.

Price: $2.50

Tasmanian birds

Field Naturalists Club

A pocket book for quick reference. It includes most of the common birds seen around schools.

Available from: Bookshops

Price: $3.95

Skulls of the mammals in Tasmania

R. H. Green, 1983

An illustrated key with comprehensive drawings of all mammals including introduced animals.

Available from: Queen Victoria Museum and Art Gallery, LAUNCESTON, 7250.

Price: $4.95

Caring for injured and orphaned wildlife

Jack Wheeler, National Parks & Wildlife

Very useful guide on a variety of injuries, housing care and feeding (including suitable mixtures).

Available from: Department of Lands,Parks and Wildlife, Macquarie Street, HOBART, 7000.

Some common spiders of Tasmania

V. V. Hickman, 1967

Some useful information on different spiders.

Available from: Tasmanian Museum and Art Gallery, Macquarie St,.HOBART, 7000.

Tasmanian amphibians. Fauna of Tasmania, Handbook 6

A. A. Martin Littlejohn

An extensive reference to Tasmanian frogs with keys to the frogs, calls, eggs and tadpoles. Includes photographs and descriptions.

Available from: University of Tasmania bookshop, Churchill Avenue, SANDY BAY, 7005.

Price: $3.00

Tasmanian frog calls

Alan Hewer

A prepared audio tape of calls and descriptions of all Tasmanian frogs.

Available from: Media Library, 71 Letitia Street, NORTH HOBART, 7000, or Molesworth Environment Centre (loan only).

Tasmanian land & freshwater molluscs

B. Smith & R. C. Kershaw

Drawings and descriptions of the 105 snails and slugs to be found in Tasmania.

Available from: University of Tasmania bookshop, Churchill Avenue, SANDY BAY, 7005.

Price: $5.00

Common insects (poster)

Gould League of Victoria

A colourful poster showing major insect families. Useful for identification of insects both in the field and in the classroom.

Available from: Gould League of Victoria, PO Box 446, PRAHAN, 3181. **Price:** $2.00

USEFUL REFERENCE BOOKS (FLORA)

Forest trees of Tasmania

Northern Woodchips

A useful field guide for the identification of Tasmanian trees. It includes photographs and detailed descriptions of individual tree characteristics, a key to Tasmanian eucalypts and small maps showing geographic location.

Available from: Private Bag 34, LAUNCESTON, 7250.

Price: Available on request

Illustrated guide to Tasmanian native trees

J. B. Kirkpatrick and Sue Backhouse, Mercury-Walch

A quick identification of native trees. A comprehensive book of clear illustrations of leaves, buds and fruit and a short description of each tree including details of height and regional location.

Available from: Bookshops

Price: $6.50

Eucalyptus buds and fruits

G. M. Chippendale, (ed.), Forestry and Timber Bureau

The only accurate way of identifying a eucalypt is by its buds and fruit. This book has drawings of over 600 species.

Available from: Molesworth Environment Centre (loan only)

A field guide to weeds in Australia

Charles Lamp and Frank Collet, Inkata Press

An excellent guide to Australian weeds with clear photographs and an index of common names. Individual descriptions include details of reproduction, size and location. It answers the question, 'What is a weed?'

Available from: Bookshops

Price: $14.95

Tasmanian weed handbook

B. Hyde-Wyatt and D. Morris

An informative handbook with an index of common names, explicit diagrams of the seedling and mature stages of local weeds.

Available from: Department of Agriculture,HOBART, 7000.

Price: $2.50

Junior survival: orchids

Gould League of Victoria

A useful booklet that provides an excellent introduction to orchids.

Available from: Gould League of Victoria, PO Box 446, PRAHAN, 3181.

Price: $1.20

Australian native orchids in colour

L. Cady and E. Rotherham

Includes details of the location, pollination and appearance of many local orchids, and helps easy identification for the inexperience teacher.

Available from: Bookshops

Price: $8.95

Fun with Australian plants

G. Elliot, Hyland House

A very extensive ideas book covering diverse activities relating to lichen, plant pressing and flower emblems.

Available from: Bookshops

Price: Approximately $13.00

Flowerless plants

G. Allen and J. Denslow

A useful introduction to moss, lichen, fungi and liverworts, with brief descriptions and practical ideas for collection and recording.

Available from: Bookshops

Price: $7.99